

Dark Skies Herefordshire: Biodiversity Action Plan

Dark Skies Herefordshire aims to conserve and enhance dark skies across the rural landscape of Herefordshire, raise people's awareness of Artificial Light At Night (ALAN) and the need for Responsible Outdoor Lighting At Night (ROLAN). It is a volunteer-led initiative that is supported by Herefordshire CPRE (HCPRE).

Examples for Parish and Town Councils to include in their Biodiversity Action Plans

Background

In accordance with the duty imposed on town and parish councils by Section 40 of the Natural Environment and Rural Communities Act 2006, updated by Section 102 of the Environment Act 2021, parish and town councils must from time to time consider what action they can properly take, consistently with the proper exercise of their functions, to further the general biodiversity objective. This duty also means that town and parish councils can spend funds in conserving biodiversity.

Definition

According to the Department of Environment, Food and Rural Affairs (DEFRA) (Biodiversity 2020), biodiversity is the variety of all life on Earth. It includes all species of animals and plants – everything that is alive on our planet. Biodiversity is important for its own sake and has its own intrinsic value. A number of studies have shown this value also goes further. Biodiversity is the building block of our 'ecosystems' that in turn provide us with a wide range of goods and services which support our economic and social wellbeing. These include essentials such as food, fresh water and clean air, but also less obvious services such as protection from natural disasters, regulation of our climate, and purification of our water or pollination of our crops. Biodiversity also provides important cultural services thus enriching our lives.

The impact of light pollution on biodiversity is a growing field of study and research. As with many emerging environmental threats, the research evidence on the impacts of Artificial Light At Night (ALAN) on different flora, fauna and ecosystems is still in its infancy, however, there is sufficient evidence to suggest it may have some quite significant detrimental impacts on biodiversity and human health.

Mitigation measures can be introduced at different levels by householders, businesses, parish and town councils in different spatial areas (eg. city, urban fringe, urban, rural fringe, rural), for different times of the year (eg. autumn through to spring) or nighttime (eg. 12midnight to 5am) in order to systematically tackle ALAN and its impact.

Dark Infrastructure creates dark corridors and enables movement of photo-sensitive species through an area of continuous darkness. Therefore, this document offers ideas and suggestions for parish and town councils to include in their Biodiversity Action Plans to promote the concept of ‘Dark Infrastructure’. These need to be used alongside and in conjunction with their Green Infrastructure Plans and Policies such as their Neighbourhood Development Plans and Environmental Policies.

Dark Skies Herefordshire aims to conserve and enhance dark skies across the rural landscape of Herefordshire, raise people’s awareness of Artificial Light At Night (ALAN) and work with partners to inform the public how ALAN negatively affects the health of plants, night-time pollinators, birds, amphibians, reptiles, mammals and humans. It advocates natural darkness and only adding artificial light for specific purposes as recommended by the International Dark Sky Association: ‘Five Principles of Responsible Outdoor Light At Night’ (ROLAN).

Dark Skies Herefordshire uses the ‘precautionary principle’, which has four central components:

1. taking preventative action in the face of uncertainty, e.g. start with natural darkness and only add artificial light for specific purposes
2. shifting the burden of proof to those who are sceptical about the negative impacts of light pollution, e.g. gather and share evidence to inform parishioners’ lighting behaviour
3. exploring a wide range of alternatives to possibly harmful actions. e.g. provide various examples for all ages to install Responsible Outdoor Lighting At Night (ROLAN) in their home, business or community
4. increasing public participation in decision making,^{1 2} e.g. involve children, adults, parishioners and businesses in dark skies actions

Ideas and suggestions to protect and enhance dark skies are included in the following table:

¹ *Science for Environment Policy (2017) The Precautionary Principle: decision making under uncertainty. Future Brief 18. Produced for the European Commission’s DG Environment by the Science Communication Unit, UWE, Bristol. Available from: <http://ec.europa.eu/scienceenvironment-policy>*

² *Kriebel, D., Tickner, J., Epstein, P., Lemons, J., Levins, R., Loechler, E. L., Quinn, M., Rudel, R., Schettler, T. and Stoto, M. (2001) The precautionary principle in environmental science. Environmental Health Perspectives 109(9): 01109871. Available from: <https://doi.org/10.1289/ehp.01109871>*

Site	Action	Outcome	Target (years)	Reporting/Publicity
Parish/Town Council area	Promote ALAN-free zones where there are limits of upward emitted light over identified geographical areas within the parish/town council boundary	Dark Corridors for wildlife and biodiversity		<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Light Pollution Survey • Neighbourhood Development Plan • Website • Social media • Presentation at the Annual Parish/Town Meeting
Parish/Town Council area	Deliver practical schemes in towns and villages to encourage measures to reduce energy use and limit ALAN by integrating smarter lighting design, for example, sensors that turn on lights in car parks, or on pathways only when people approach.	<p>ROLAN Principle no. 1: All light should have a clear purpose</p> <p>Parishioners and businesses aware of the negative impact of ALAN on biodiversity, why dark corridors are important, and what is Responsible Outdoor Lighting At Night</p>		<ul style="list-style-type: none"> • Baseline Light Pollution Survey • Website • Social media • Presentation at the Annual Parish/Town Meeting

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<p>Parish/Town Council buildings; Householders and Businesses within the parish, churches, village halls, schools</p>	<p>Retrofitting shielded luminaires to limit light spill</p>	<p>ROLAN Principle no. 2: Light should be directed only to where it is needed</p>		<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Light Pollution Audit or Survey • Website • Social media • Presentation at the Annual Parish/Town Meeting
<p>Parish/Town Council buildings; Householders and Businesses within the parish, churches, village halls, schools</p>	<p>Install sustainable lighting to reduce energy costs and CO2 output whilst minimising impact of ALAN.</p>	<p>ROLAN Principle no. 3: Light should be no brighter than necessary</p>		<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Lighting Audit or Survey • Website • Social media • Presentation at the Annual Parish/Town Meeting

<p>Parish/Town Council buildings; Household­ers and Businesses within the parish, churches, village halls, schools</p>	<p>Using timers to reduce unnecessary light at times when it isn't needed</p>	<p>ROLAN Principle no. 4: Light should be used only when it is useful</p>		<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Lighting Audit or Light Pollution Survey • Website • Social media • Presentation at the Annual Parish/Town Meeting
<p>Parish/Town Council buildings; Household­ers and Businesses within the parish, churches, village halls, schools</p>	<p>Using timers to reduce unnecessary light at times when it isn't needed</p>	<p>ROLAN Principle no. 5: Use warmer coloured lights where possible</p>		<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Lighting audit or Light Pollution Survey • Website • Social media • Presentation at the Annual Parish/Town Meeting

<p>Planning applications within the Parish/Town Council boundary</p>	<p>Technical and practical adaptations of the lighting design to be submitted with every householder and full planning applications that outline precise lighting designs which include spectral power distribution, lighting control and adaptive lighting concepts, light distribution and orientation.</p>	<p>Evidence of Light Pollution/ Dark Skies Policies (state specific Herefordshire Council Core Strategy and Local Plan, National Landscape’s Management Plans and/or Neighbourhood Development Plan policies)</p> <p>Protect habitats and light-sensitive species</p>		<ul style="list-style-type: none"> • Website • Social media • Presentation at the Annual Parish/ Town Meeting
<p>Sensitive habitats within the parish/town council boundary, eg. SSSI, SAC, grassland meadows, verges, hedgerows</p>	<p>As above</p>	<p>Evidence for reducing impacts on sensitive species and habitats such as common land, grassland meadows, verges, hedgerows, woodlands, freshwater ponds, tributaries and rivers</p>		<ul style="list-style-type: none"> • Baseline Habitat Survey • Website • Social media • Presentation at the Annual Parish/ Town Meeting

<p>Sites of light-sensitive species and groups within the parish/town council boundary, e.g. Night-time pollinators such as moths, Protected species such as Great Crested Newts and Bats, Invertebrates such as Glow worms, Tree frogs, Migratory species such as birds and monarch butterflies</p>	<p>Above</p>	<p>Light-sensitive species and groups identified in the parish with clear management plans</p>		<ul style="list-style-type: none"> • Baseline Ecological Assessments or Surveys • Herefordshire Biological Records Centre • Specific species surveys: • National Biodiversity Network Trust Survey Database • Wildlife Trust Great Big Nature Survey • Peoples Trust for Endangered Species (hedgerows, mammals, voles, orchards, stag beetles) • Bat Conservation Trust – Night Watch Survey • RSPB Big Garden Birdwatch • Natural History Museum surveys (for children)
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Sports fields and Playgrounds	Discourage Floodlighting	Protect habitats and light-sensitive species	Ongoing	<ul style="list-style-type: none"> • Environmental Lighting Impact Assessment (IPL) • Baseline Light Pollution Survey or audit • Website • Social media • Presentation at the Annual Parish/Town Meeting
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Further Reading:

- **Bat Conservation Trust** (2014) Artificial Lighting and Wildlife. Interim Guidance: Recommendations to Help Minimise the Impact of Artificial Lighting
- **Buglife** (2011) A Review of the Impact of Artificial Light on Invertebrates (downloadable from Institution of Lighting Professionals)
- **Institution of Lighting Professionals** (2011) Guidance Notes for the Reduction of Obtrusive Light. GN01:2011.
- **Institution of Lighting Professionals** (2013) Guidance on Undertaking Environmental Lighting Impact Assessments. PLG04:2013.
- **Institution of Lighting Professionals & Bat Conservation Trust** (2018) Bats and Artificial Lighting in the UK. Guidance Note 08/18.
- **Dark Sky UK** (2021) Towards a Dark Skies Standard: a lighting guide to protect dark skies from local need to landscape impact
- **UK Dark Skies Partnership** (2022) Local Authorities, Communities and Dark Skies Toolkit: a toolkit to help Local Authorities and communities to work together on protecting and improving dark skies and reducing light pollution

Glossary

- ALAN – Artificial Light at Night
- ILP - Institution of Lighting Professionals

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LIGHT TO PROTECT THE NIGHT

Five Principles for Responsible Outdoor Lighting



Illuminating
ENGINEERING SOCIETY



•ROLAN – Responsible Outdoor Lighting At Night

USEFUL



ALL LIGHT SHOULD HAVE A CLEAR PURPOSE

Before installing or replacing a light, determine if light is needed. Consider how the use of light will impact the area, including wildlife and the environment. Consider using reflective paints or self-luminous markers for signs, curbs, and steps to reduce the need for permanently installed outdoor lighting.

TARGETED



LIGHT SHOULD BE DIRECTED ONLY TO WHERE NEEDED

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

LOW LIGHT LEVELS



LIGHT SHOULD BE NO BRIGHTER THAN NECESSARY

Use the lowest light level required. Be mindful of surface conditions as some surfaces may reflect more light into the night sky than intended.

CONTROLLED



LIGHT SHOULD BE USED ONLY WHEN IT IS USEFUL

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.

COLOR



USE WARMER COLOR LIGHTS WHERE POSSIBLE

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.